POLITE ARTS.

No. I.

NEW MUSICAL INSTRUMENT.

The LARGE SILVER MEDAL *was presented to* THOMAS DOWLER, M.D., *for his New Musical Instrument called the Glossophone.*

London, February 24, 1829.

DR. DOWLER presents his compliments to Mr. Aikin, and will thank him to lay before the Society of Arts a musical instrument which has lately been finished under his direction, and which he believes to be the only one of the kind before the public.

The principle of this instrument has been known for a short period in this country, under the form of that beautiful little toy, now so familiar by the name of Eola, or mouth-harp. The sweet and plaintive sounds produced by this simple and unsophisticated contrivance first gave rise to the idea that something might be produced which would retain all its peculiar beauties, while at the same time a much greater range could be given, and the whole put into a far more convenient and practically useful form than the instrument in question then possessed.

The tones are obtained by the vibration of metallic tongues, put in motion by a current of wind issuing from

a bellows; and the adaptation of keys to them enables the performer to play either organ or piano-forte music. These tongues or plates, with the exception of the highest octave, are made of an alloy called German silver, or electrum, which is composed of a mixture of copper, zinc, and a little nickel. The notes of the remaining octave are wholly manufactured from extremely thin sheet steel, imported into this country from Switzerland, and chiefly, if not entirely, used in the construction of lithographic pens.

At the back of the instrument is the wind-chest, communicating in its whole length with the bellows; and on its summit are placed the tongues, arranged in their proper order, side by side, each of which is let into a little cell of its own size and shape, and firmly secured by means of a button. In every cell is a valve opening downward, and pressure upon a key of the instrument opening its corresponding valve, the wind is allowed to rush past the tongue, which causing it to vibrate, produces the note required.

Figs. 1 and 2, plate iii., represent the largest and smallest of these springs four octaves apart, exactly half the real size; *a* the spring, *b* the clamp by which it is fixed to the plate *c*, the aperture of which it just fills without touching.

Fig. 3 is an end view of the instrument in section, one-eighth of the real size; and fig. 4 a front view of the series of cells or apertures *dd*, over which the springs are placed; *ee* the top of the bellows; *f* one of the valves, which also closes a small hole in which the bottom of the wire *g* hangs from the balance; *hi* a poppet, which is raised by the key *jj*, and which, by rising, presses the wire *g* down upon the valve *f*, and opens it; *k* the pedal

by which the bellows is filled. On beginning to blow, the weight-board *l* rises first, and is adjusted to give the right pressure; on rising higher, the weight of the frame *m m* is added, but as this would be too much, balance-weights *n*, one at each end, are attached to this frame, causing it to rise or fall without affecting the pressure; *o* a weight which falls as the bellows rise, by means of the connecting string *pp; q* and *r* two flaps which are opened by a pedal; *ss* a string from the tail of *q*, which passing over the pulleys *t v*, goes down to a pedal hid by that marked *k; u* a string from the flap *r*, which passes the pulley *v*, and descends to the same pedal; thus *r* is depressed, and *q* raised at the same time to let out the sound.

Fig. 5, a top view of part of the cells *d d*, some of the tongue-plates being removed; *w w* buttons which keep them in their places; *x x* holes through which the wires *g* pass to open the valves. This and fig. 6 are one-fourth of the real size. Fig. 6 shews another method of opening the valves *f;* here they have tails within the bellows, under which the poppets *i* are placed, the heads of which close the holes when they fall. Fig. 7, a different method of effecting the same; here the valve-tails *f* project out of the bellows, the valves being jointed above and below with leather to keep them wind-tight; *y* are guide-wires between the valves; *z* the quill or spring which closes the valves. This fig. is half the real size, and shews how the tongue-plates are held in by the buttons *w*, the cells being covered with leather to keep them wind-tight. As the tongues vibrate, from being within the aperture or throat of the current, the valves *f* should be at some distance, as they are in the way of the same current, and would otherwise damage the vibrations.

Figs. 8, 9, 10, 11, 12, shew a method of tuning these springs by a screw; *b* the clamp-plate which binds the spring to the plate *c;* it has a rising ridge with a notch, as shewn separate in fig. 10; in this lies the neck of the screw; it has double shoulders to keep it in place, the end being squared to fit a key: the screw works in a slide; this slide is screwed to another on the other side of the plate *c*, which has a middle ridge rising up to touch the spring; the screws pass through two elongated holes in the plate *c*, shewn in fig. 8. Fig. 11 shews this slide separate; and fig. 12 is a side view of its ridge plate; it is twice as long as its intended motion, so that it leaves no part of the tongue and aperture behind uncovered. This sliding clamp holds both the spring *a* and plate *c* equally tight, so that the vibration is as good from it as from the first fixture; but the first plate *b* must be screwed the tightest, to prevent the slide from moving the tongue.

The peculiarity of the above construction consists in the free communication which the wind-chest has from *one extremity to the other* with the interior of the rising portion of the bellows, and which appears, from many experiments made upon the subject, to be very advantageous, if not essential to the production of clear sounds; more especially when many tongues are vibrating at the same time.

The present instrument must be considered in many points of view, and from many causes, as one in a very imperfect state; but still it may be sufficient to demonstrate, that the *principle* could be advantageously applied to instruments upon a much larger scale; and it is a circumstance by no means improbable, that by a combination of notes, whose sounds are produced from

metals or alloys of different degrees of hardness, or, perhaps, even from ivory, and other elastic substances, an instrument may hereafter be manufactured which shall possess considerable power in a small compass, and which might be purchased at a very moderate price.

No. II.

PAINTING IN WATER-COLOURS.

The GOLD ISIS MEDAL *was presented to Mr. C. J.* ROBERTSON, *of Worton House, Isleworth, for his Improvements in the Art of Painting in Water-colours.*

Worton House, Isleworth,
April 10, 1829.

SIR,

IN the hope of being useful to the lovers of painting, I send you a specimen of a method of painting in water-colours, the result of experiments pursued for some years, in the hope of enabling water-colours in some measure to compete with oil. How far I have succeeded in giving the force and brilliancy of an oil picture, the Society of Arts will be enabled to judge from this copy of the splendid picture of Titian in the National Gallery: but my method possesses some peculiar advantages in a durability and facility of cleaning, I do not hesitate to assert, superior to oil, and in pictures painted in this manner not requiring a glass, as it may be cleaned with alcohol at any time, or as often as it may please, without the slightest injury; and every one knows, who is at all